

**PROGRAM NARRATIVE
APPLICATION FOR FEDERAL ASSISTANCE
2009 UPDATE OF THE MONTANA STATE AVIATION SYSTEM PLAN**

INTENT FOR CONSULTANT

The following scope of work has been structured to provide the consultant ease in completing assigned tasks without the aid of sub-consultants and/or major technical assistance from any government agency forthwith mentioned.

I. OBJECTIVE:

1. Conduct Pavement Condition Indexes (PCIs) for selected NPIAS airports.

II. APPROACH AND BENEFITS TO ACCRUE:

1. PCIs – Approximately 60 Pavement Condition Indexes (PCIs) will be accomplished at various general aviation airports located throughout the state of Montana. The result anticipated from the project will be precisely measured data that will be used in an electronic format called MicroPaver. This data will be used as an objective tool for Federal, State and local agencies in determining and justifying maintenance and rehabilitation needs for various airport projects. Emphasis will be placed on the creation of a priority list of maintenance needs at inspected airports. This prioritized list of maintenance items will be used directly by the Aeronautics Division and the FAA in budgeting maintenance money for FAA funded pavement maintenance programs. In addition, the PCIs will provide a dependable scale for comparing existing pavement conditions and probable future pavement performance condition of various airports.

III. SCOPE OF WORK:

1. Project Approach and Introduction

A detailed chapter of the report will be compiled listing the consultants approach to the project and how it was achieved. Examples and figures will be included for clarity and the language should be written in easy to understand terms. A section including definitions, if needed, should also be included. For reasons of conformity, the final bound report and the format of the displayed information within will be loosely similar to the final bound PCI reports as collected in the last ten years. Examples of these reports will be available from the Division.

2. Data Collection

For airports that have no previous PCI MicroPaver data available, basic airport layout data will be collected for the airport to be analyzed. This information will be collected using the airport layout plans, construction plans, pavement design, maintenance history, airport traffic, and any records on frost action or similar problems. Electronic schematic base maps will be prepared showing pavement locations, dimensions, features, pavement sections, and MicroPaver sample unit layouts with explanations.

For airports which PCI MicroPaver data is available, the existing MicroPaver database will be updated to reflect any new pavement construction, rehabilitation or maintenance work at each of the airports. Modification of all existing base maps and identification of new pavement sections will be required. Previous

electronic base map information may not be available to the consultant. Hardcopies of all previous base maps will be provided by the Division.

In choosing the software to be used, the latest version of the Windows based MicroPaver will be obtained and utilized. Once the consultant has reviewed the latest version MicroPaver, Montana Aeronautics will be notified and permission obtained before actual purchase of the software. At least one licensed copy of the approved MicroPaver software will be purchased by the consultant for the use and ownership by the Division. The consultant will be responsible for working with Montana Department of Transportation Information Technology (MDT IT) representatives in order to load the licensed copy onto two separate Division computers along with all updated and final PCI data collected by the consultant. If two licensed copies are required for the two separate computers for legal reasons, then the consultant will purchase two licensed copies.

Other types of pavement management software (not MicroPaver) may be considered for use by the Division if requested by the consultant. These other pavement management systems will be presented by the consultant to the Division for consideration. The Division has final authority regarding which pavement management system will be utilized.

3. Definition of Sample Units to be Evaluated

For airports that have no previous PCI data, each different airport pavement feature, such as runways, taxiways, and apron areas, will be identified using the current airport layout plans and used to create sections for the MicroPaver database as is appropriate. Each of the pavement features present at each facility will be defined and identified on the base map by using the pavement design records and construction plans. A "pavement feature" is a pavement area having consistent thickness, built for a specific purpose utilizing normal construction materials. Sample units will be approximately 5,000 square feet in size for asphalt pavements and by individual slab for concrete surfaces or as is reflected in any updates to MicroPaver compatible engineering techniques. The location and number of sample units analyzed must produce a 92% confidence level, and will be identified and marked on the base map.

For airports which previous PCI data exists, all branches and sections will be identical to the original inspection, except where new sections occur due to new construction rehabilitation or maintenance. The location and number of sample units analyzed must produce a 92% confidence level, and will be identified and marked on the base maps.

4. Perform Pavement Condition Survey

Each airport to be surveyed will receive a detailed field examination and pavement analysis utilizing sound engineering techniques compatible with the MicroPaver system. Units of sections to be evaluated will be marked on the pavement using base maps as a reference. Each sample unit will then be analyzed and rated according to the procedures outlined in appendices A and B of latest version of FAA Advisory Circular 15/5380-6 "Guidelines and Procedures for Maintenance of Airport Pavement". Individual pavement distress types will be identified, such as alligator cracking, rutting, raveling, block cracking, etc. For additional information on finding, identifying and rating distress types, please refer to "Pavement Management for Airports, Roads, and Parking Lots" by M.Y. Shihin. Each sample unit will be rated using the established deficiency rating procedure. Ratings will then be compiled to produce a ranking for each pavement feature.

5. Produce Summary Reports

A PCI listing and its respective pavement ratings will be developed for all airports receiving a PCI. The written report will be user friendly and contain both the base maps and field evaluation forms for each airport. The field evaluation forms complete with the rating computations will be provided in the written report for future reference. The summary report will be developed with the intent of minimizing the preliminary work effort involved in future PCI evaluations and to provide an accurate historical record.

An electronic summary report will be created for each airport for the intent of broadcasting the information of the Division's website. The electronic information will be in a format recognizable and compatible with the Division's website, such as PDF or similar. The Division will approve the final electronic format to be used for the report. The consultant will then work directly with MDOT IT representatives if needed to assure the website report is 100% compatible with the MDOT website. The consultant will work closely with Division representatives during this process as well.

6. Results and Recommendations

A detailed chapter of the written PCI report will be compiled listing the PCI results, recommendations and overall summaries. Reports included in this chapter should include, but not be limited to, family analysis curves, PCI predictions, tables of PCI summary ratings, system-wide pavement conditions, the pavement life cycle figure, and a budget condition forecast.

Maintenance & Rehabilitation (M & R) policy suggestions will also be compiled with the consultant determining the correct control costs for the policies. The reports used in creating the M & R policies, including the M & R report, the network maintenance report and the preventative maintenance report may or may not be included in the final report. The Division will be consulted when determining the variables in the reports and whether the reports are to be included in the final report. The Division may have the consultant create a simple cost report for inclusion in the final report. The cost report will be specific to each airport and be aimed at airport managers so they may realistically budget for maintenance and rehabilitation costs over a period of years.

7. Deliverables

All data collected within the scope of this project will be collected and organized for printing and report presentation in a three ring binder format with pleasing cover graphics and titled "Montana Aviation System Plan - 2009 Update - Pavement Condition Indexes".

A copy of all electronic data used and created for this project, including base maps, PCI information and any other electronic files used in the creation of the PCI reports will be delivered to the Division. The Division will retain the right to use all electronic files delivered within this scope for future updates and revisions.

Ten hardcopies of the final three ring binder report will be delivered to the Montana Aeronautics Division after final approval of a final draft copy by the Aeronautics Division.

8. Airports to be Evaluated

Approximately 60 airports are to be evaluated under this pavement condition index program, to be designated by Montana Aeronautics and the Federal Aviation Administration at a later date.